

What is claimed is:

1. An exercise assisting instrument for assisting knee-bending exercise being characterized in that,

a lifting device always positions a chair for supporting a user's body near buttocks of the user, which moves upward and downward together with the knee-bending exercise, whereby the user doing the knee-bending exercise may sit at the chair any time, accordingly the user may do the knee-bending exercise safely.

2. The exercise assisting instrument defined in Claim 1 being characterized in that,

said lifting device raises the chair in conjunction with pulling movement of user's arms when a user stands up with pulling user's arms.

3. The exercise assisting instrument defined in Claim 1 or 2 being characterized in that, said lifting device comprises

a base,

a pair of supporting columns formed on the base,

a pair of lifting mechanisms having lifting arms connected to each other at first hinge points, one ends of lifting mechanisms being rotationally connected to said supporting columns and other ends thereof moving upward and downward along said supporting columns, and said one ends serving as second hinge points,

a pair of lever arms having handle-parts at their ends for the user to grip, said lever arms being rotationally connected to the supporting columns at third hinge points, around which they swing upward and downward as seesaws,

a stopper for abutting the chair to stop when the chair moves down and reaches to the lowest point.

an upward movement assisting device for urging an assisting force in a direction that the other ends of the lifting mechanisms move upward, and,

a connecting member for connecting the first hinge points of the lifting arms to control the movement of said paired lever arms,

wherein said lifting device partially assists standing-up movement of the user and lightens a burden of the knee-bending exercise when the user stands up and pulls said handle-parts of the lever arms upward with

gripping said handle-parts.

4. The exercise assisting instrument defined in any of Claims 1~3 being characterized in that,

said lever arms have length adjusting devices so the user may adjust the length thereof corresponding to user's body size.

5. The exercise assisting instrument defined in Claims 3 being characterized in that,

said upward movement assisting device is made of an elastic member which is connected between said stopper and said connecting member.

6. The exercise assisting instrument defined in Claim 1 being characterized in that, said lifting device comprises,

a base,

a pair of supporting columns formed on the base,

a pair of lifting mechanisms having lifting arms connected to each other at first hinge points, one ends of lifting mechanisms being rotationally connected to said supporting columns and other ends thereof moving upward and downward along said supporting columns, and said one ends serving as second hinge points,

a pair of lever arms having handle-parts at their ends for the user to grip,

a connecting member for connecting the first hinge points of the paired lifting arms to control the movement of said paired lever arms,

a lifting linkage having a linkage system for moving said moving ends of said lifting mechanisms upward and downward in conjunction with the movements of said lever arms,

a lifting base fixed to said moving ends of said lifting mechanisms, said lifting base moving upward and downward together with the upward-downward movement of said moving ends and having support means for supporting said lever arms to move backward and forward, and,

an upward movement assisting device for urging an assisting force in a direction that said moving ends of the lifting mechanism moves upward,

wherein said lifting device partially assists standing-up movement of the user and lightens a burden of the knee-bending exercise when the user stands up and pulls said lever arms upward with gripping said

handle-parts.

7. The exercise assisting instrument defined in Claim 6 being characterized in that,

said lever arms have length adjusting devices so that the user may adjust the length thereof corresponding to user's body size.

8. The exercise assisting instrument defined in Claim 1 being characterized in that, said lifting device comprises,

a base,

a pair of supporting columns formed on the base,

a pair of lifting mechanisms having lifting arms connected to each other at first hinge points, one ends of lifting mechanisms being rotationally connected to said supporting columns and other ends thereof moving upward and downward along said supporting columns, and said one ends serving as second hinge points,

a pair of lever arms which move upward and downward in conjunction with the upward-downward movement of said moving ends,

a connecting member for connecting the first hinge points of the paired lifting arms to control the movement of said paired lever arms,

a pair of wire members, each having an end which is used as a pulling end part pulled by the user and an other end which is connected at the first hinge point of said lifting arms so that the moving ends of said lifting arms may be moved upward by pulling said pulling end parts, and,

an upward movement assisting device for urging an assisting force in a direction that said lifting mechanism moves upward,

wherein said lifting device partially assists standing-up movement of the user and lightens a burden of the knee-bending exercise when the user stands up and pulls said lever arms upward with gripping said handle-parts.

9. The exercise assisting instrument defined in Claim 8 being characterized in that,

said lifting arms have winding devices for winding said wire members at the first hinge points.

10. The exercise assisting instrument defined in Claim 8 or 9 being characterized in that,

said lever arms have an angle adjusting device so that the user may adjust the angle of said lever arms corresponding to user's body size.

11. The exercise assisting instrument defined in Claim 6 or 8 being characterized in that,

said upward movement assisting device is made of an elastic member, which is connected between an upper end of said supporting column and the first hinge point of said lifting arms.

12. The exercise assisting instrument defined in Claim 3, 6 or 8 being characterized in that,

said chair moves upward and downward in conjunction with the upward-downward movement of the moving ends of said lifting arms, wherein said exercise assisting instrument further includes,

an upward movement stopper to stop said chair at a designated position of height.

13. The exercise assisting instrument defined in Claim 12 being characterized in that,

said chair has an adjusting device for moving the chair backward and forward so that the position of the chair may be adjusted to a suitable position to the user.

14. The exercise assisting instrument defined in Claim 12 or 13 being characterized in that,

said chair has a structure able to tilt forward so that the user may easily stand up when some part of the user's body touches said chair to tilt forward.

15. The exercise assisting instrument defined in Claim 12 being characterized in that,

said stopper is a column member established under said chair and supports said chair at the upper part of said column member when said chair moves downward.

16. The exercise assisting instrument defined in Claim 3, 6 or 8 being characterized in that, said exercise assisting instrument further includes,

an assisting force adjusting device that may even the assisting forces of said upward movement assisting devices and also may adjust the force thereby the assisting force being adjusted according to the user's condition.

17. The exercise assisting instrument defined in Claim 1 being characterized in that, said exercise assisting instrument further includes,

a counter counting a number of knee-bending of the user.

18. The exercise assisting instrument defined in Claim 3, 6 or 8 being characterized in that,

said base has slip stoppers to prevent slipping so that the user does not slip.